



**CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY**

Name(s) Brittany N. Smith	Project Number S2413
Project Title Regeneration in Earthworms	
Objectives/Goals The objective of regeneration in earthworms is to find out whether specific severed segments will affect the different regenerative processes in either half of the worm, and halves are considered as part A (anterior end), and part B (posterior end). As well as, to consider the points where an earthworm will re-grow if severed at particular areas.	
Abstract Methods/Materials During my experiment, I tested 60 worms or specimens and with each new worm one segment was cut (ex. Specimen 1: segment 1 was severed, specimen 8 the eighth segment was severed, etc.) Also, materials used included European Earthworms, an exacto-knife, igniter, plastic bags, water, and bedding. Each worm was recorded by specific characteristics, and the worms would be cut at particular segments (segments 1-60). Furthermore because both halves of the worm would be observed for the same time period data was taken during the worm's health condition and whether any improvements in regeneration would occur.	
Results Lastly, I had found that the worms that were severed at the segments ranging from 40-60 survived for a significant longer period of time, whilst showing signs of the two key factors of regeneration; a blastema and segment budding. On the other hand beginning segments such as 1-10 part A. of the worm would soon die while the remaining part B would survive.	
Conclusions/Discussion Regeneration in earthworms is a two part discernible process where the data had shown the overall part B (posterior ends) would ultimately live for a longer period of time in comparison to part A (anterior ends). Also, not only is regeneration an important cellular function of mitosis, not meiosis, earthworms are hermaphrodites and thus basic tissue cultures relate to mitosis. In addition to the data shown, my hypothesis of, #If I cut an earthworm at or above the clitellum both halves will die#, was wrong in the sense that both ends would survive, but not for the allotted time frame.	
Summary Statement My project consults whether or not earthworms will regenerate if cut at specific segments.	
Help Received My mother helped take pictures, give transportation, and preview my report.	